RHIC Spin Retreat

RHIC Retreat

March 5-7, 2002

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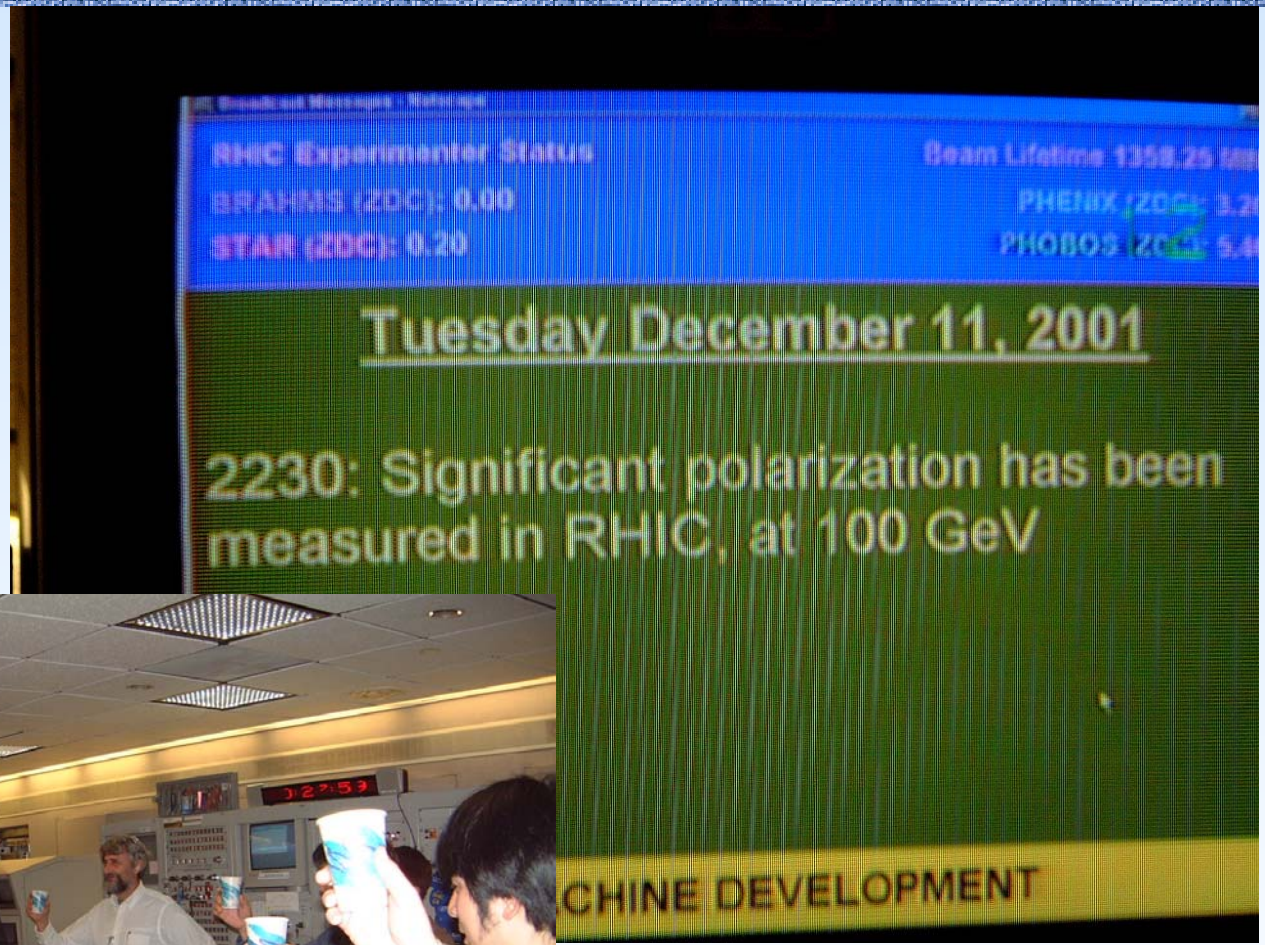
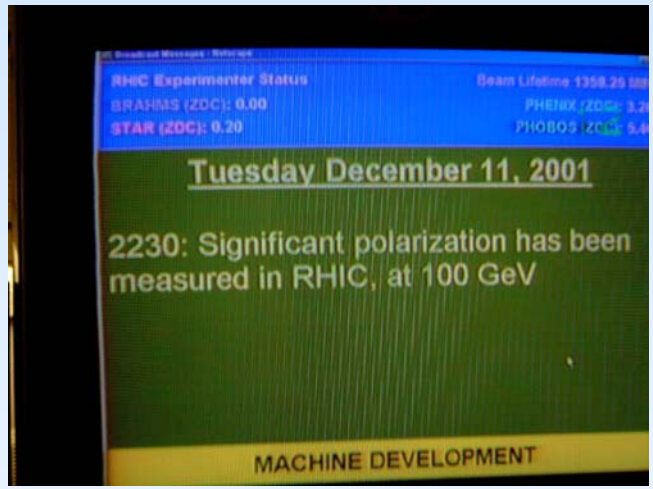
The First Polarized pp Collider



RHIC Spin Excitement 12/11/01



RHIC Spin Retreat

- Questions on Run-2 Performance and Run-3 Plan by Gerry are well covered by previous speakers

In Addition, I would add:

- Interfacing Issues:
  - Experiment-Experiment Communication
  - Experiment-MCR Communication
- Request / Proposal for Better Future

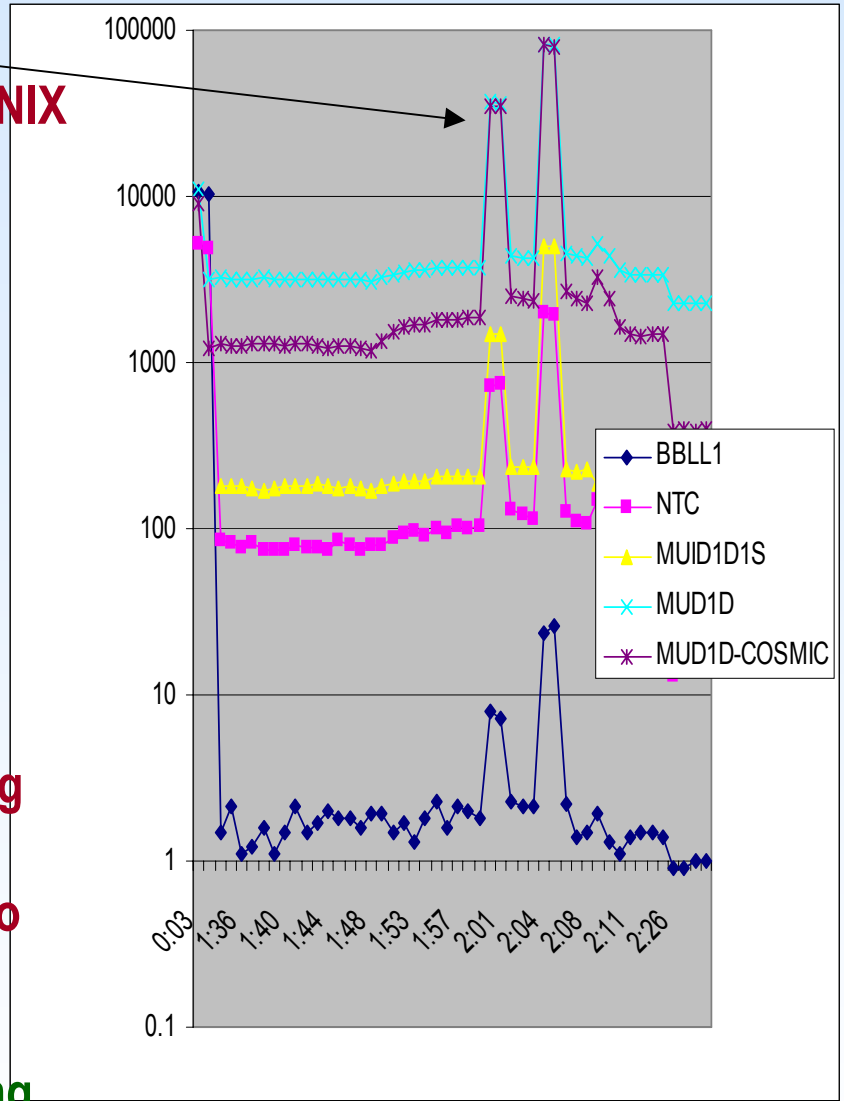
Exp-Exp and Exp-MCR Communications

- Usefulness of "Gerry's Meeting"
  - Timely discussion for re-focusing efforts towards most optimal working plan
    - After Gerry's Meeting on December 28, 2001, where we concluded Lumi is important so far rather than Polarization, we had a huge jump in Luminosity within a few hours
  - Coherent view among all experiments and all machinists
    - Eliminates "rumor" type of mis-information
    - Minimizes Unnecessary conflicts among experiments
  - As a result, we were able to extract maximal success out of limited available time

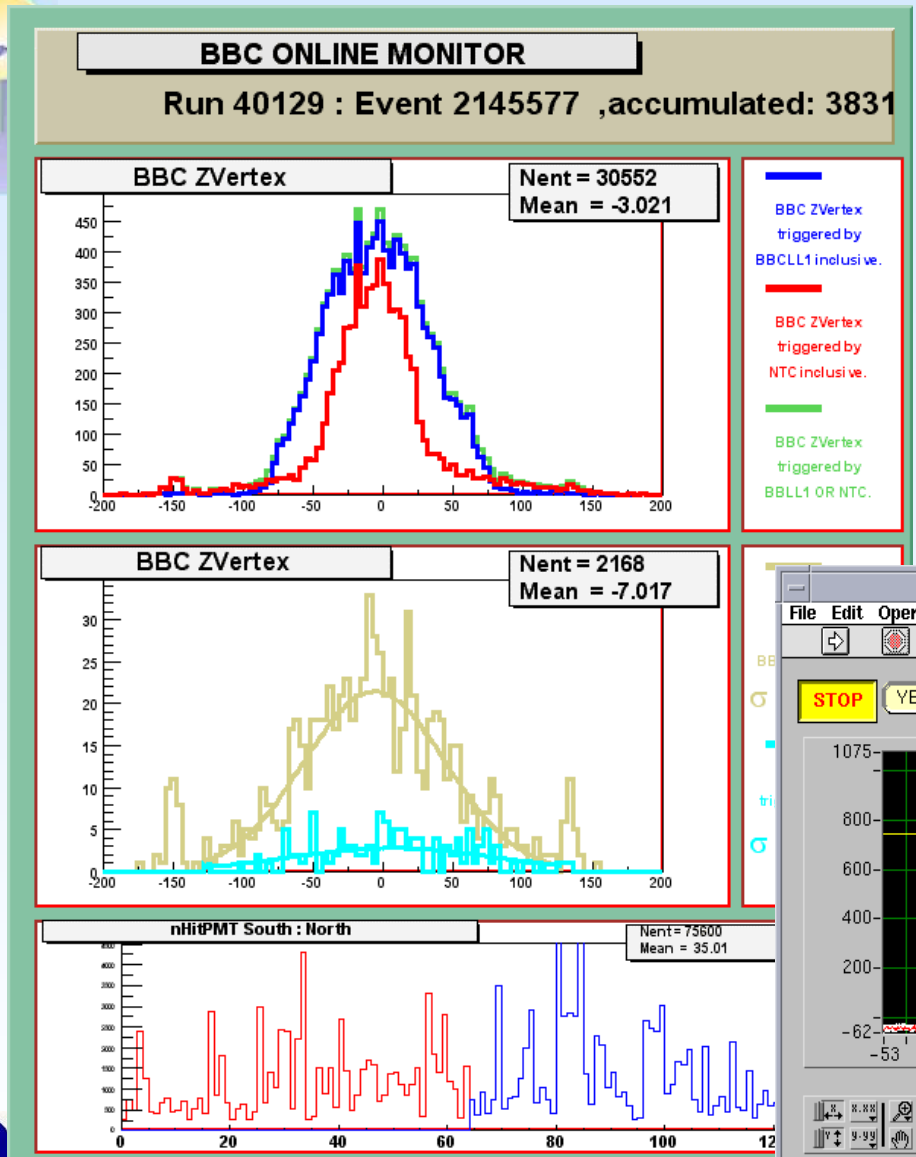
Exp-MCR Communication

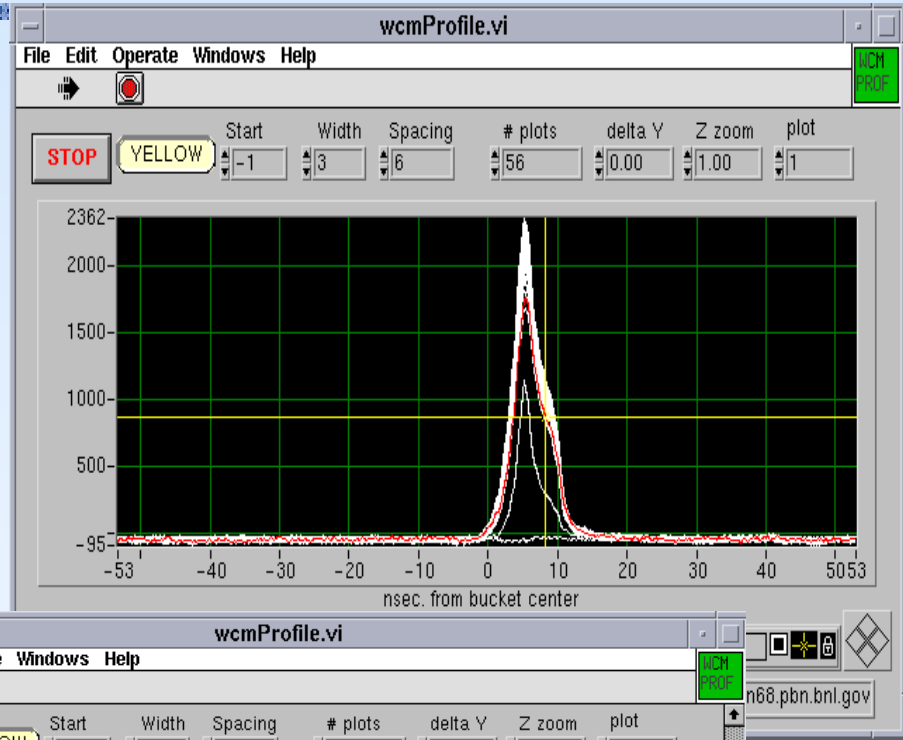
Better communication with MCR is desirable

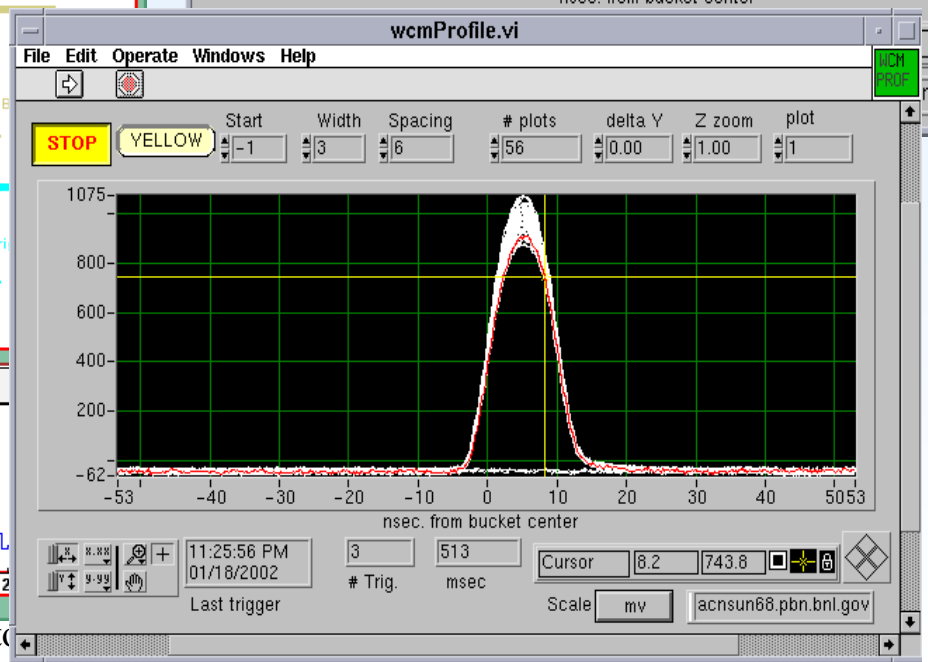
- Polarization Measurement
  - E.g. A big change observed in PHENIX MuID Trigger Performance
- Steering
  - Always fixed order??
- Cog / Re-cog / Spin Flip
  - Crucial for Spin Asymmetry Measurements
  - Visualize on some RHIC Monitor?
- Scraping
  - PHENIX MuID
- Dump
  - Decision and Preparation takes long
- Spin Pattern Change
  - # of Options should be minimized to avoid confusion
- Experimental Magnet Control
- Shift-to-Shift Information transfer among MCR shift crews



Vertex Distribution and Bunch Profile







For even more Successful Run-3

- Better Performance ($\mathcal{L}$&$\mathcal{E}$) and Reproducibility
  - Diagnosis at each step is VERY important
    - Source -> 200 MeV -> Booster -> AGS injection -> AGS extraction -> RHIC injection -> RHIC flat top
  - Understand systematics of monitoring system
    - Redundant measurements
      - Multiple measurements at RHIC (cf. Emittance growth ? Scaping?)
      - E880 vs new AGS CNI Polarimeter
      - RHIC CNI Polarimeter and possible Local Polarimeters
- Commissioning of New Devices and re-commissioning of "OLD" Devices
  - Re-commissioning will also take sometime.
  - NEW
    - Spin Rotators and Local Polarimeters
  - OLD:
    - Snakes / Spin Flipper / Polarimeter
  - Source → Linac → Booster → AGS → AtR

Run 3 and Beyond

- Any Short Range Plan should be consistent with Long Range Plan
- Roadmap towards Full-Fledged RHIC Spin Operation
  - Absolute Polarization Calibration
    - Pol-J target
    - Better calibration at injection energy
    - Down ramp
  - Develop Robust Operation Phase space
    - Source → Linac → Booster → AGS → RHIC
    - Any additional device to achieve this goal?
      - "Strong" AGS Partial Snake
- How can we arrange these developments with minimal interference with Spin and HI PHYSICS program ?
- A series of RHIC Spin Collaboration Meetings are scheduled to develop the plan.

Summary

- The first polarized pp run was successful
- For further success
  - We should improve
    - Exp-Exp and Exp-MCR Communications
  - We need
    - Better Luminosity and POLARIZATION
  - We would like to see
    - Reproducibility in Machine Performance
- Especially Polarized proton operation requires collaborative work by Experiment and Accelerator!